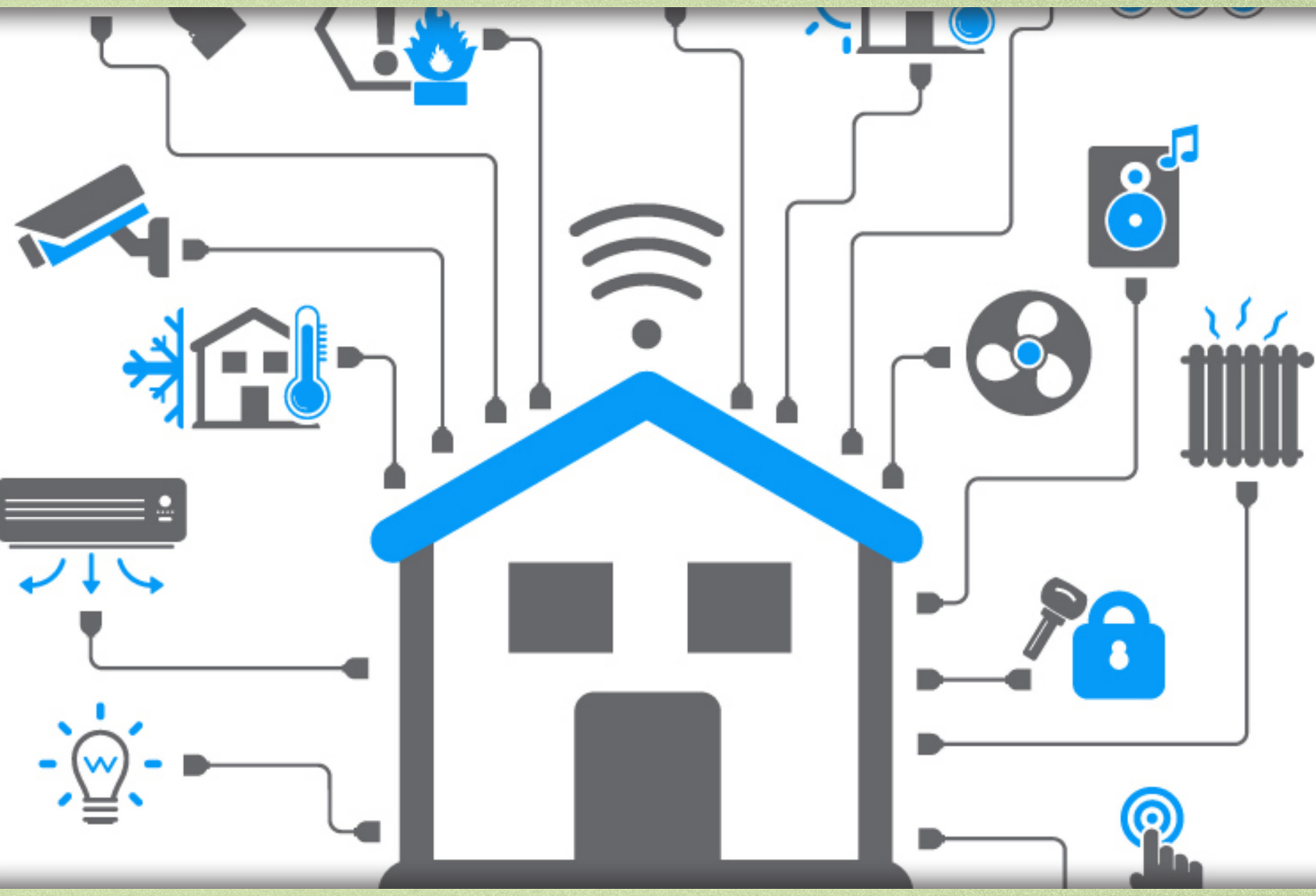
2015 ANNUAL REPORT

With Data from the 2013-2015 Plan Term

Cost-Effective Energy Efficiency for Residents, Businesses and Institutions



MA ENERGY EFFICIENCY ADVISORY COUNCIL

Prepared for the Massachusetts General Court,
the Joint Committee on Telecommunications,
Utilities and Energy, and the Department of Public Utilities

Letter from the Chair

2015 EEAC REPORT TO THE LEGISLATURE

As the Chair of the Massachusetts Energy Efficiency Advisory Council (EEAC), I am pleased to share the 2015 Annual Report with the Massachusetts General Court; the Joint Committee on Telecommunications, Utilities, and Energy; and the Massachusetts Department of Public Utilities. This report serves to inform the General Court of the results of ratepayer investments in energy efficiency in the Commonwealth, both for the 2015 calendar year and the 2013-2015 Three-Year Plan term.

In 2015, the final year of the second Three-Year Energy Efficiency Investment Plan, the Commonwealth's electric and gas distribution companies (together, the program administrators, or PAs) delivered their strongest results to date, overseeing over $743 million in investments and achieving a return on that investment of $3.3 billion in economic benefits, or $4.48 for every $1 spent. Over the entire 2013-2015 Plan period, the PAs oversaw nearly $2 billion in investments, which led to over $9 billion in economic benefits—a return of $4.68 for every $1 spent. Since 2010, the Commonwealth's energy efficiency investments have delivered nearly $15 billion in energy savings and non-energy benefits, an amount equivalent to 3 percent of the Commonwealth's gross state product. These results, among others, contribute to Massachusetts' status as the #1 state in energy efficiency[1], a recognition that the Commonwealth has received each year since 2011.

Under a framework established by the Green Communities Act in 2008, the PAs implement statewide energy efficiency incentive programs under the Mass Save® brand. The Commonwealth's investments in energy efficiency have not only consistently led to substantial economic returns, but are also significantly less expensive than new supply. In 2015, the PAs reduced electricity use at a cost of 3.4 cents per kilowatt-hour, when that same electricity would otherwise have been supplied at an average retail rate of 16.9 cents per kilowatt-hour. These results demonstrate again that investing in energy efficiency is the most cost-effective way to decrease greenhouse gas emissions while delivering significant cost savings to residents, businesses, and institutions in the Commonwealth.

I thank the Legislature for its ongoing support. I also thank the EEAC Councilors who volunteer their time to attend meetings, review plans, and track program results in order to ensure that Massachusetts continues to provide innovative, impactful, nation-leading energy efficiency programs. Finally, it is the PAs, contractors, retailers, community groups, and others who work together to promote and implement the Commonwealth's effort to obtain all cost-effective energy efficiency in order to deliver significant benefits to all the Commonwealth's residents and businesses.

Judith F. Judson

Chair, **Massachusetts Energy Efficiency Advisory Council**
Commissioner, **Massachusetts Department of Energy Resources**

[1] The American Council for an Energy Efficient Economy (ACEEE) ranks state energy efficiency in an annual scorecard available here: http://aceee.org/research-report/u1509

Cover photo: Architerra Inc., architecture, and Chuck Choi, photography.

2013–2015 Summary

This report to the Massachusetts Legislature summarizes the Commonwealth's energy efficiency accomplishments during the full three years of Massachusetts' second Joint Statewide Three-Year Energy Efficiency Plan ("Three-Year Plan"), covering 2013 through 2015. The Three-Year Plans, implemented and delivered under the Mass Save® brand by the Commonwealth's utility companies in their role as program administrators (PAs), stem from a requirement of the Green Communities Act of 2008 to capture "all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply." The previous Plan (2010–2012) generated nearly $5.5 billion in cumulative benefits to the Commonwealth, while the 2013-2015 Plan delivered over $9.3 billion in benefits. In 2015, the PAs surpassed their goals and continued to improve the Mass Save program, achieving savings in excess of 3% of total sales for that year, an all-time high. Achieving aggressive energy efficiency goals has helped Massachusetts to be recognized every year since 2011 as the #1 state for efficiency by the American Council for and Energy Efficient Economy (ACEEE).

The table below summarizes many of the key quantitative outcomes from 2013-2015. The PAs delivered above-goal overall savings while staying below the planned budget. The electricity, natural gas and heating oil savings created through the Mass Save programs in 2013-2015 were equivalent to the power used annually by over 622,000 households, about 25% of the households in Massachusetts. These savings also represent greenhouse gas emission reductions equivalent to removing more than 390,000 cars from the road.

2013-2015 ANNUAL ENERGY SAVINGS CAN BE UNDERSTOOD WITH THESE COMPARISONS

OVER 622,000 HOMES POWERED

NEARLY 35,000 HOMES HEATED FROM OIL AND GAS SAVINGS

MORE THAN 390,000 CARS OFF THE ROAD

2015 YEAR-END RESULTS

	2015	2013–2015	2013 & 2015 Actual % of Goal
Total Benefits (million $)	$3,333,844,570	$9,329,725,899	111%
Program Spending (million $)	$743,501,415	$1,992,821,144	99%
Economic benefits per dollar spent	$4.48	$4.68	112%
Annual Electricity Savings (GWh)	1,468	3,920	106%
Annual Gas Savings (million therms)	26.2	78.7*	109%
Annual Oil Savings (million gallons)	2.98	9.9	129%
Annual CO_2 reductions (metric tons)	667,474	1,848,291	108%
Annual NOx reductions (metric tons)	233	622	106%
Annual SO_2 reductions (metric tons)	113	302	106%

*This value does not account for increased gas usage from Combined Heat and Power CHP, a C&I electric measure. Although CHP provided significant electric savings, it resulted in an increase in gas usage of 28 million therms.

The table below provides additional detail by sector for key metrics

	Program Spending (million $)	Participants (thousands)	Annual GWh	Lifetime GWh	Annual Therms (million)	Lifetime Therms (million)	Annual CO_2 (metric Tons)
Residential							
2015	324	5,056	515	4,526	16	184	290,884
2013–2015	885	11,961	1,438	10,980	45	510	825,644
% of 2013–2015 Goal	118%	143%	134%	188%	134%	145%	133%
			198,772 homes		**45,659** homes		**175,669** cars
Low Income							
2015	101	43	48	484	2	40	31,694
2013–2015	283	132	128	1,247	7	132	95,665
% Of 2013–2015 Goal	103%	128%	153%	160%	155%	155%	141%
			17,673 homes		**6,835** homes		**20,354** cars
C&I							
2015	318	44	904	12,700	8	128	344,942
2013–2015	825	115	2,354	30,998	27	401	926,983
% of 2013–2015 Goal	83%	179%	92%	92%	80%	80%	90%
			325,389 homes		**27,683** homes		**197,230** cars

2013–2015 Program and Strategy Highlights

Over the 2013-2015 timeframe, the Massachusetts PAs exceeded goals for electric and natural gas savings and reached 111% of the statewide plan goal while spending 99% of the budget. In 2015, total benefits from these energy efficiency investments were the highest ever in a single year at over $3.3 billion. These savings represented the highest statewide energy efficiency achievement in the nation. Cumulatively, over the 2013-2015 period, the Mass Save programs provided over $9 billion in benefits to the Commonwealth.

Reaching the goals set forth in the 2013-2015 Three-Year Plan required effective program design and implementation. On November 13, 2012, the Massachusetts Energy Efficiency Advisory Council passed a resolution that listed several expectations for the 2013-2015 programs.. These expectations and the PAs' efforts to meet them are described below.

[1] http://ma-eeac.org/wordpress/wp-content/uploads/MA-EEAC-Resolution-Regarding-2013-15-Energy-Efficiency-Plans.pdf

MEETING CUSTOMER NEEDS

The PAs have designed and implemented successful energy efficiency programs that meet the unique needs and motivations of different types of customers. During the 2013-2015 timeframe, the PAs took many additional approaches to focusing on customer needs.

For example, the PAs jointly procured an industry-leading online energy efficiency assessment tool and configured it to meet the unique needs of Massachusetts consumers. The online assessment gives customers a better sense of whether participating in the HES program is appropriate for their home and identifies a high-level estimate of the savings potential from participating in the program, as well as other opportunities they can pursue. The assessment allows customers to quickly and easily access this information from their computer or connected device.

The PAs also convened a Commercial Real Estate (CRE) Working Group that worked with Massachusetts real estate stakeholders through 2013 and 2014. This interaction led to the development of several strategy proposals to broaden and deepen CRE program participation, which informed the 2016-2018 Three-Year Plan.

Additional Mass Save Strategies to Meet Customer Needs:

- Provided more integration of electric and gas programs to streamline customer experience with programs.
- Implemented multi-year agreements with large commercial and industrial customers to build long-term relationships and energy savings.
- Convened a multi-family working group to improve the customer experience.
- Developed targeted approaches to serve market segments such as healthcare and grocery.
- Implemented a standardized approach to serving municipal customers statewide.
- Completed the Western Massachusetts Storm Recovery initiative to help provide energy efficiency services to new construction and major renovation projects for customers impacted by severe weather.
- Partnered with the local lending community to grow the Mass Save HEAT loan initiative, which provides homeowners with zero-interest loan opportunities to assist with the installation of qualified efficiency upgrades.

REACHING MORE CUSTOMERS AND ACHIEVING DEEPER ENERGY SAVINGS

To achieve the aggressive goals of the 2013-2015 Three-Year Plan, the PAs realized that they had to both encourage more customers to participate in Mass Save programs and achieve more savings per program participant, while continuing to achieve savings from "low-hanging fruit" opportunities. During 2013-2015, the PAs undertook strategic marketing and program design and delivery strategies to work towards these priorities.

Expanding the "Upstream Approach" as a program delivery mechanism was one way the PAs worked to reach more customers. As an alternative to mail-in rebates, upstream programs work with manufacturers and distributors to reduce the retail cost to customers of efficient technologies at the point of sale. The manufacturer provides lower retail pricing or offers an instant rebate to customers, which reduces the first cost and influences customers' purchasing decisions.

This approach reaches significantly more customers while influencing manufacturers and distributors to produce and stock more efficient products. The PAs continuously improved and expanded the

Additional Mass Save Strategies to reach more customers and achieve deeper savings:

- Developed new co-branded marking materials with contractors to be incorporated into the suite of subsidized materials that contractors use for marketing.
- Revised the commercial section of the Mass Save website to improve organization, navigation, and introduce customer-oriented language.
- Used programming and evaluation research to identify ways to encourage deeper savings.
- Used multi-year customer agreements to encourage greater participation and deeper savings over time.
- Created the residential deeper-energy-measures offer to support customers seeking to super-insulate exterior walls, floors over a garage, or cathedral ceilings in retrofit applications.
- Launched the Mass Save Awareness Campaign using traditional and social media to reach customers.

upstream program portfolio to include additional lighting products, HVAC equipment (2013), and water heating equipment (2015).

Additionally, aggressive upstream LED lighting incentives enabled more affordable pricing by manufacturers and retailers. This has caused a rapid expansion of the LED lighting market in Massachusetts. The saturation of efficient LED lighting in the Massachusetts market increased rapidly over the 2013-2015 Three-Year Plan term.

The PAs sought deeper savings in the commercial and industrial sector through initiatives like the Main Streets Delivery Model, a community-based strategy that targets main street areas of cities and towns. This initiative targets clusters of small businesses, a hard-to-reach customer segment, for an enhanced incentive of up to 100% for certain efficiency improvements. The Main Streets approach achieves higher penetration with the small, local businesses typically found in these areas.

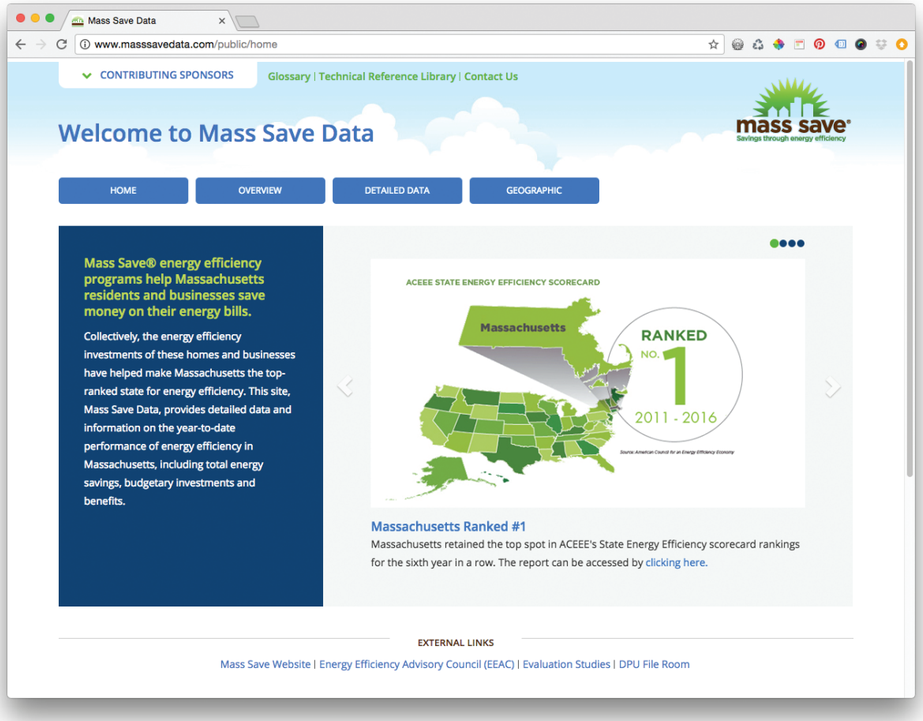
ADDRESSING HARD-TO-REACH CUSTOMERS

Certain market sectors and building types have historically been difficult to reach through existing energy efficiency programs and marketing efforts. Although there is more work to be done to achieve the efficiency savings potential from hard to reach customers, the PAs took steps to reach and serve these customers in 2013-2015.

For example, the PAs implemented and evaluated the Efficient Neighborhoods+ initiative, which was designed to engage hard-to-reach customers with an enhanced version of the Home Energy Services (HES) program. The initiative targeted communities with high concentrations of households making between 61% and 100% of the state median income living in single-family or 2-4 unit homes, homeowners as well as renters. All residents of selected communities could participate, removing the challenging and stigmatizing process of individual income verification screening. Efficient Neighborhoods+ included a range of marketing and outreach strategies and made energy efficient improvements more affordable.

USING DATA, EVALUATION, AND RESEARCH TO IMPROVE PROGRAMS

Evaluation, measurement, and verification (EM&V) is a critical part of energy efficiency efforts in Massachusetts, providing objective research that helps to ensure the reliability of savings claims, improve existing programs, and support the development of new ones. Market research provides invaluable information about customer needs and the most effective ways to reach them. Accessibility



to program data and metrics also allows numerous stakeholders to review and analyze program outcomes and identify opportunities for improvement. The PAs use all of this information to enhance programs in the current plan and develop future plans.

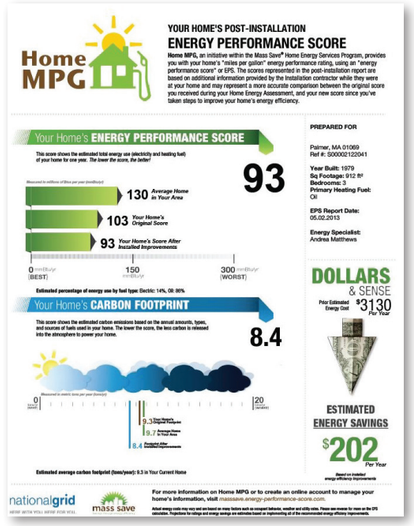
In 2014, the PAs launched Mass Save Data, an online database featuring planned and evaluated program data and results. Mass Save Data provides stakeholders and the public with greater access to energy efficiency data. Historical data on Mass Save Data is available as far back as 2010 and new results are added regularly. Data can be viewed on the site as well as downloaded in Excel or PDF formats.

Between 2013-2015, evaluation contractors completed approximately 130 EM&V studies. An Evaluation Planning Summit was held in February 2015. The summit allowed the PAs, Council Consultants, and evaluation contractors to discuss a long-term strategic vision and ways to improve the efficiency of the evaluation process. Results of the summit helped guide the development of the Strategic Evaluation Plan for the 2016-2018 Three-Year Plan.

[2] http://www.masssavedata.com

HOME MPG SCORECARD PILOT

The 2013-2015 Plan period also saw the launch of new partnerships for obtaining greater and more cost-efficient energy savings. Home MPG—a two-year residential pilot delivered in partnership between Massachusetts state and local governments and utility program administrators, with funding support from the U.S. Department of Energy—demonstrated an innovative approach to saving energy: the pilot provided home energy performance scorecards as an integral part of home audits to over 3,800 Mass Save customers in eight cities and towns in the Springfield area. These scorecards, which were developed based on research about homeowners' motivations to act on energy efficiency opportunities, compared each home's energy use to its expected energy use if recommended improvements were made, as well as to the average of other homes in the area.



Home MPG also tested a number of novel energy efficiency program enhancements. For example, bonus incentives for new clean heating technologies, such as cold climate heat pumps and biomass boilers, were offered in the second year of the pilot. Local banks and credit unions were also recruited to expand coverage of the successful HEAT Loan program in an area of the state that had been underserved.

Case Studies

The following case studies provide examples of the kinds of projects completed through the Mass Save programs in Massachusetts. These projects helped customers to save money while improving comfort and reducing greenhouse gas emissions.

Case Study

AARON INDUSTRIES, LEOMINSTER, MA

Program: Large Custom Retrofit
Partner: National Grid

"We certainly had a wonderful experience working with both Leidos and National Grid on these projects. The constant professionalism they displayed is a rarity in today's business world."

— Pete Angelini, Independent Energy and Environmental Consultant for Aaron Industries

The Need

Aaron manufactures thermoplastic custom compounds and resins from recycled plastics at its 100,000-square-foot production facility, while also maintaining a state-of-the-art shipping and receiving operation. Over the years, Aaron Industries has completed many energy-saving projects with the help, expertise and incentives of National Grid. Looking to further invest in energy efficiency, Aaron called upon National Grid's Industrial Initiative Team – a group of efficiency and engineering experts from National Grid and Leidos, National Grid's lead engineering vendor. The team conducted a facility assessment to identify the most worthwhile energy efficiency opportunities.

The Solution

Based on the energy assessment, Aaron decided to complete several recommended upgrades including:

- Replace three extruders with new, energy-efficient models
- Install a new extruder with automatic screen changer
- Install a new pulverizer system
- Install a new vacuum transfer system
- Complete an extensive heat recovery project

National Grid and Leidos worked with Aaron from start to finish and National Grid provided more than $346,000 in incentives to help Aaron complete every project.

Not only did Aaron save hundreds of thousands of kWh and dollars, but they also achieved several significant non-energy benefits, including:

- Increased production and throughput
  - Thanks to the new, energy-efficient 600hp extruders, Aaron's throughput has grown exponentially. The new 600hp extruder has increased annual productivity by 33%, all with less energy than the old machine used. Those results spurred Aaron to complete additional extruder replacements.
- Waste heat recovery
  - Reclaiming all of the hot air (produced by their five extruders and other machines) that was once being vented out of the facility has cut their heating bill in half, without sacrificing any employee comfort.
- Reduced maintenance costs
  - As Aaron's extruders aged, they required more and more maintenance. Completing that maintenance resulted in roughly 100 hours of downtime annually. Their new extruders, which need less frequent maintenance, have reduced downtime to 12 hours annually.
- Strengthened sustainability: Implementing these projects allowed Aaron meet and exceed its goal of reducing its carbon footprint by 5%.

Savings Summary

Project Cost:	$1.2 million
Incentive Payment:	$346,259
Actual Customer Cost:	$872,739
Annual Energy Savings:	1.8 million kWh; and 17,000 therms
Annual Cost Savings:	$583

Case Study

BIG Y FOODS, 12 LOCATIONS ACROSS NATIONAL GRID'S MA SERVICE TERRITORY

Program: Energy Smart Grocer
Partner: National Grid

"If we track our energy consumption and costs today versus where they were seven years ago, we're lower than those levels, and over that period we've added square footage and stores. It just shows everyone that all the effort we put in has paid off and will continue to pay off."

— Gary Kuchyt, Energy Manager, Big Y Foods

The Need

Big Y Foods is a regional grocery store chain with store locations across Massachusetts and Connecticut. The company sees energy efficiency as a strategy for helping to cut operating costs while improving the look and feel of its stores.

The Solution

Big Y first began working with EnergySmart Grocer in 2013. Since then, the company has implemented 51 energy-saving projects between 12 store locations, receiving $653,813 in cash incentives. Those projects combine to save over 3.7 million kWh every year.

EnergySmart Grocer helped streamline the company's efforts to reduce its energy use. "The good thing about dealing with the group is there are a lot of initiatives that have already been tested and used elsewhere. So we know if you do x, y and z you qualify for this incentive amount. That makes it easier and enables us to do more projects in a smaller amount of time," said Gary Kuchyt, Big Y's manager of energy and sustainability.

One of Big Y's most recent energy-saving efforts involved the addition of glass doors to refrigerated dairy cases at multiple store locations. The doors increase performance by preventing inefficient mixing between the warmer air in the aisles and the cooler air within the cases. This helps both the refrigeration system and HVAC system do their jobs while using considerably less energy. Other efficiency measures have included: anti-sweat heat controls, condenser misters, a dehumidification system, ENERGY STAR commercial kitchen equipment, floating head pressure controls, a refrigeration controller upgrade, and exterior and interior lighting.

By reinvesting the money saved on energy and coupling it with available incentives, the company is targeting even more upgrades in the coming year. There are plans to complete glass door installations on any refrigerated cases missed during the first go-round, potential projects involving LED sales floor and exterior lighting, and a heightened focus on HVAC optimization.

Savings Summary

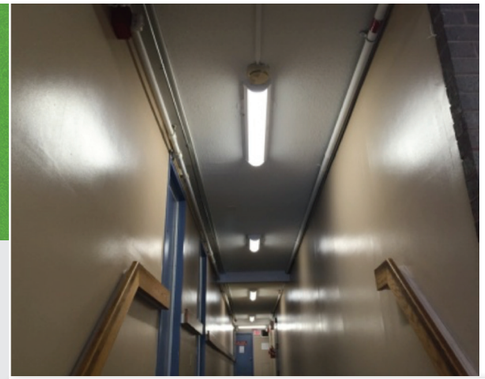
(Projects Completed Since 2013)

Project Cost:	$1,699,415
Incentive Payment:	$653,813
Actual Customer Cost:	$1,045,602
Estimated Annual Energy Savings:	3.7 million kWh; and 45,263 therms
Estimated Annual Cost Savings:	$561,000 (electric); $45,263 (gas)

Case Study

TORRE UNIDAD, BOSTON, MA

Program: Low-Income Multi-family Retrofit
Partner: Eversource



"BHA is very grateful to Eversource and the LIMF Program for the opportunity to participate. Torre Unidad is a wonderful example of the ancillary benefits associated with new lighting along with the obvious energy savings. The new fixtures have provided a vast improvement in the quantity and quality of light both inside and outside the building, which is critical for our elderly residents. In addition, BHA has seen roughly a 30-50% reduction in work orders associated with lighting in Torre Unidad and across our portfolio where the new lighting has been installed. Programs like this are critical to BHA's ability to sustain our core mission to our residents while supporting the ongoing needs associated with maintaining our facilities given the limited operating funding currently available."

— Dan Helmes, BHA

The Need

Torre Unidad is a federally funded public housing development for elderly and disabled residents in the South End of Boston. The 18-story building contains 204 studio and 1-bedroom apartments as well as community room with kitchen, laundry room, utility rooms, 2nd floor patio and on-site parking. The project was undertaken to improve lighting levels and reduce energy use.

The Solution

Boston Housing Authority submitted Torre Unidad to the Low Income Multi-family Retrofit Program in 2015. Upon acceptance, ABCD conducted an electrical audit and identified over 400 interior common area fixtures and over 60 exterior fixtures that were cost-effective to replace. All replacements were done with LED fixtures. The building now has upgraded lighting in the parking area, entries, security lights, utility rooms, laundry room, community room, patio, hallways, and stairways, among others. Residents also received instant rebate measures. Eversource provided 100% of the funding.

Savings Summary

Project Cost:	$179,610
Incentive Payment:	$179,610
Actual Customer Cost:	$0
Estimated Annual Energy Savings:	179,065 kWh
Estimated Annual Cost Savings:	$26,055

Case Study

PYNCHON/EDGEWATER APARTMENTS, SPRINGFIELD, MA

Program: Low-Income Multi-family Retrofit
Partner: Eversource, ABCD

The Need

Pynchon/Edgewater Apartments include a high-rise building comprised of 364-units known as Edgewater Apartments, and 250 townhouse style units named Pynchon Terrace. The entire complex spans five city blocks next to the Connecticut River. Property owners sought to reduce energy costs and improve tenant comfort by implementing efficiency measures.

The Solution:

ABCD conducted an electrical audit and identified over 700 interior and exterior lighting fixtures as cost-effective to replace. Residents received CFL light bulbs and advanced power strips. The full amount of the project cost was provided through the Low-Income Multi-family Retrofit Program.

Savings Summary

Project Cost:	$341,529
Incentive Payment:	$341,529
Actual Customer Cost:	$0
Estimated Annual Energy Savings:	342,475 kWh
Estimated Annual Cost Savings:	$49,830

"We are very happy with the new LED lighting, indoors and out. Residents like the brighter outdoor lights, and we like that they're so much more efficient. ABCD and CES were great to work with, and we're looking forward to seeing the savings on our bills"

— Liz Merzigian, Peabody Properties

Case Study

MATZ FAMILY HOME, HOLLISTON, MA

Program: Home Energy Services
Partner: Eversource

The Need

Laura Matz and her family were looking to resolve issues with their cold family room floor and wanted a more energy-efficient home in general.

The Solution

After a phone call to Mass Save, an Energy Specialist came to their home to conduct a whole-house energy evaluation. During the assessment, the Matz family received several energy-saving recommendations and $511 worth of no-cost products for immediate savings, including energy-efficient light bulbs, a faucet aerator, power strips, and a low-flow shower head. The Matz family moved forward with the Energy Specialist's recommendation to have insulation and air sealing work completed and received an instant incentive of $2,075 from Eversource. The Matz family is estimated to save $182 a year on energy costs and was able to increase the comfort of their family room.

Savings Summary

Project Cost:	$2,404
Incentive Payment:	$2,075
Actual Customer Cost:	$329
Estimated Annual Energy Savings:	2,287 kWh; 89 gallons of oil
Estimated Annual Cost Savings:	$192

"It's really a no-brainer. Why would anybody not want to do it? Nothing to lose! It's an amazing benefit that everybody should take advantage of."

— Laura Matz

Case Study

SALISBURY HOME, EASTON, MA

Program: Home Energy Services
Partner: National Grid

The Need

First time homebuyer Ben Salisbury heard about Mass Save through his realtor. During the Energy Assessment he received through the Home Energy Services program, the Energy Specialist discovered inadequate insulation in the walls and attic and recommended upgrading his old, inefficient heating equipment.

The Solution

To start saving immediately, Ben received $296 worth of energy efficient products at no cost, including efficient lighting, advanced power strips, and water saving devices. Ben also received $3,247 towards insulation, air sealing, and efficient heating equipment. His energy efficiency improvements are estimated to save him $1,258 annually on energy costs.

Ben Salisbury is just one example of the more than 85,000 residential customers across the state who received an energy assessment and weatherized their homes between 2013 and 2015 with the help of the Mass Save Home Energy Services Program.

Savings Summary

Project Cost:	$8,845
Incentive Payment:	$3,247
Actual Customer Cost:	$5,598
Estimated Annual Energy Savings:	1,331 kWh; 249 gallons of oil
Estimated Annual Cost Savings:	$1,258

"After learning about Mass Save I decided to schedule a Home Energy Assessment, recognizing that there is a lot of money that goes out of a home. As a first time home buyer, being able to add efficiencies right away will save me a lot going forward."

— Ben Salisbury

Case Study

BURNS FAMILY HOME, WEYMOUTH, MA

Program: Home Energy Services
Partner: National Grid

The Need

Chris Burns and his family experienced year-round heating and cooling issues in their 58 year-old split-level home. The home would not stay cool in the summer or warm in the winter, and the Burns family was spending a lot on utilities. Chris continued to search for solutions to make his heating and central air conditioning more effective and efficient, but had yet to find a way to increase the comfort of his home or save on his monthly utility bill.

The Solution

After learning about Mass Save from a neighbor, Chris called to schedule a no-cost Home Energy Assessment. During the assessment, an Energy Specialist conducted a whole-house inspection and created a custom energy report outlining specific recommendations for the Burns' home. The family received no-cost energy saving products, including LED bulbs, advanced power strips, water saving devices, and a programmable thermostat. The Energy Specialist found that the home could benefit from air sealing and increased insulation, and let Chris know about eligible incentives through Mass Save.

Chris decided to move forward with the recommendation to increase insulation in his home and was able to receive 75% off the cost, up to $2,000. In addition, Chris had hidden air leaks sealed in his home at no cost through the program. With the incentives available through Mass Save, the total project only cost Chris $447. The Burns family is projected to save $435 per year from the insulation and air sealing improvements, along with an additional $148 per year from the energy saving products provided at the time of their assessment.

Savings Summary

Project Cost:	$3,736
Incentive Payment:	$3,289
Actual Customer Cost:	$447
Estimated Annual Energy Savings:	572 kWh; 127 gallons of oil
Estimated Annual Cost Savings:	$583

Legislative Background

HISTORY

The current framework for energy efficiency delivery was developed in response to the mandate of the Green Communities Act of 2008 to deliver all cost-effective energy efficiency. The 2013–2015 Three-Year Plan stands on the foundation of the nation-leading results achieved in the first Three-Year Plan, from 2010 to 2012. The 2013–2015 Three-Year Plan is the result of collaboration between the Commonwealth's gas and electric distribution companies and municipal aggregators (the PAs), the Energy Efficiency Advisory Council (EEAC), the Massachusetts Department of Energy Resources (DOER), and many interested stakeholders in the public, private, and nonprofit sectors. Three acts signed into law in 2008 guide the continued evolution of efficiency programs in Massachusetts:

- **The Green Communities Act (GCA)** requires the PAs to develop energy efficiency plans that will "provide for the acquisition of all available energy efficiency and demand reduction resources that are cost-effective or less expensive than supply." In connection with these energy efficiency plans, the Act established the EEAC to oversee and advise the PAs on all aspects of efficiency planning and program execution.

- **The Global Warming Solutions Act (GWSA)** mandates the reduction of greenhouse gas emissions in the Commonwealth, establishing a schedule of emissions reduction goals designed to spur innovation and promote research and development in the area of clean energy.

- **The Green Jobs Act** provides a funding source for the green technology industry, facilitating economic development and job growth in the clean energy sector. This law established the Massachusetts Clean Energy Center (CEC). Massachusetts' energy efficiency programs continue to support key goals of the Act, including reducing energy costs for consumers, increasing the stability and reliability of fuel sources, continuing to drive innovation and develop the Commonwealth's robust clean energy economy, and capturing all available cost-effective energy savings opportunities and the associated lifetime benefits.

GOVERNANCE: THE ENERGY EFFICIENCY ADVISORY COUNCIL

The Massachusetts EEAC was created by the GCA to guide the development of comprehensive, integrated statewide energy efficiency plans and monitor their implementation. Its primary role is to fulfill the efficiency requirements, goals, and obligations of the GCA. The EEAC has fifteen voting members that represent a variety of energy efficiency stakeholders and twelve non-voting members that represent the PAs from the investor-owned electric and gas utilities and energy efficiency service providers and other stakeholder groups. The EEAC is chaired by the Commissioner of the Massachusetts DOER.

Whereas the EEAC is responsible for guiding the PAs in carrying out the requirements of the GCA, the PAs are responsible for delivering programs that result in measurable, verifiable energy savings in accordance with the three-year goals approved by the Department of Public Utilities (DPU). As regulated entities, the PAs must receive approval from the DPU for their efficiency program spending and related cost recovery. The goals and costs in the current Three-Year Plan, covering the period from January 1, 2013, to December 31, 2015, were approved by the DPU on January 31, 2013.

FUNDING SOURCES

The electric energy efficiency programs are funded by a variety of sources, the largest of which are a historical System Benefit Charge (SBC) and the Energy Efficiency Reconciliation Factor (EERF) created by the Green Communities Act. The percentage of the 2013–2015 Plan's total funding that come from each source is listed in parentheses below.

- The legislatively mandated SBC of 2.5 mills ($0.0025) per kilowatt-hour for all electric consumers, except those served by a municipal lighting plant (22%)

- The EERF, which recovers additional program costs from electric customers in proportion to the costs of programs directed at each sector (i.e., residential, commercial & industrial), with low-income programs receiving subsidies from other sectors (63%)

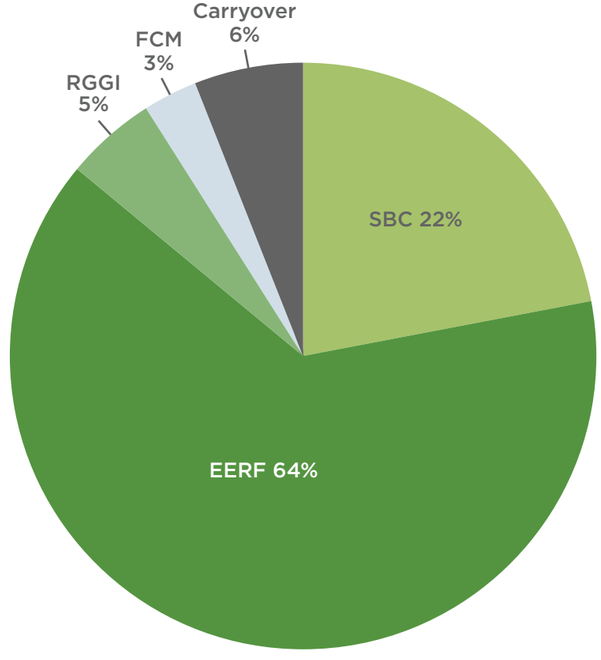
- Regional Greenhouse Gas Initiative (RGGI) auction proceeds (5%)

- Forward Capacity Market (FCM) payments from ISO-NE (3%)

- Carryover funds from previous years (6%).

The natural gas efficiency programs are funded by an Energy Efficiency Surcharge (EES) on gas customers' bills.

2013–2015 FUNDING SOURCES



MASSACHUSETTS ENERGY EFFICIENCY ADVISORY COUNCIL

The information below is correct as of December, 2015

VOTING MEMBERS

AUSTIN BLACKMON / DESIGNEE: BRAD SWING
City of Boston
Representing Commonwealth Cities and Towns

AMY BOYD
Acadia Center
Representing Environmental Community

LARRY CHRETIEN
Energy Consumers Alliance of New England
Representing Massachusetts Non-Profits

ELIZABETH GLYNN
Center for Sustainable Energy
Representing Residential Consumers

CHARLIE HARAK
Local 369 of the Utility Worker Union of American
Representing Organized Labor

MAURA HEALEY / DESIGNEE: DONALD BOECKE
Massachusetts Office of the Attorney General
Representing Attorney General

ELLIOTT JACOBSON
Low-Income Energy Affordability Network
Representing Low Income Weatherization & Fuel Assistance Network

PAUL JOHNSON
Greentek
Representing Energy Efficiency Small Businesses

JUDITH JUDSON
Massachusetts Department of Energy Resources
EEAC Chairperson

CHRYSTAL KORNEGAY / DESIGNEE: ALANA MURPHY
Massachusetts Department of Housing and Community Development
Representing Housing and Community Development

RICHARD MALMSTROM
Dana-Farber Cancer Institute
Representing Businesses and Large Commercial & Industrial End Users

DEIRDRE MANNING
Representing Energy Efficiency Experts

MICHAEL MCDONAGH
The Massachusetts Association of Realtors®
Representing Massachusetts Realtors

ROBERT RIO
Associated Industries of Massachusetts
Representing Manufacturing Industry

MARTIN SUUBERG / DESIGNEE: NANCY SEIDMAN
Massachusetts Department of Environmental Protection
Representing Environmental Protection

NON-VOTING MEMBERS

CINDY CARROLL
Unitil
Representing Utility Energy Efficiency Program Administrator

ELIZABETH CELLUCCI
Columbia Gas of Massachusetts
Representing Utility Energy Efficiency Program Administrator

MAGGIE DOWNEY
Cape Light Compact
Representing Utility Energy Efficiency Program Administrator

PAUL GROMER
Peregrine Energy
Representing Energy Efficiency Businesses

MICHAEL FERRANTE
Massachusetts Oilheat Council
Representing Heating Oil Industry

ANDREW NEWMAN
Blackstone Gas
Representing Utility Energy Efficiency Program Administrator

MICHAEL SOMMER
Berkshire Gas
Representing Utility Energy Efficiency Program Administrator

TILAK SUBRAHMANIAN
Northeast Utilities
Representing Utility Energy Efficiency Program Administrator

CAROL WHITE
National Grid
Representing Utility Energy Efficiency Program Administrator

ERIC WINKLER
ISO New England
Representing Regional Electric Transmission Organization

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